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Does School Functioning Matter in Patients of Child and Adolescent Mental Health Services?

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Abstract

Objective: General population studies have demonstrated that good school functioning protects children and adolescents against mental health problems. However, no such studies of clinical populations have been conducted. Therefore, we explored the association between school functioning and mental health in patients referred to child and adolescent mental health services (CAMHS). We also examined whether good school functioning and general social competence at referral predicted better mental health outcomes after six months of outpatient treatment.
Method: Of 345 patients, aged 8–15.5 years, referred as outpatients to CAMHS in a Norwegian county, 192 were eligible for a six-month follow-up study. Parents filled out the Child Behavior Checklist (CBCL) for 120 of these children and teachers completed the Teachers' Report Form (TRF) for 122 children.
Results: Teacher-reported adaptive functioning ($r = –0.65$) and academic skills ($r = –0.42$), and parent-reported social competence ($r = –0.35$) and school competence ($r = –0.27$) were significantly ($p < 0.01$) negatively associated with total emotional and behavioral problems at baseline. Parent-reported school competence and the total level of emotional and behavioral problems at referral significantly ($p < 0.05$) predicted the total level of emotional and behavioral problems six months after referral.
Conclusion: Both teacher- and parent-reported school functioning were associated with mental health in CAMHS patients. Only parent-reported school competence predicted total levels of emotional and behavioral problems six months after referral. Therapists, teachers, and parents should cooperate closely when planning and conducting child and adolescent psychiatric treatments, and school should be considered an important area for intervention.

Key Words: School functioning; Child; Mental Health Services; CBCL; TRF

Introduction

This study explored the association between school functioning and mental health among patients who were referred for child and adolescent mental health services (CAMHS). School is important as a social and learning environment that affects not only the academic achievements of students but also their present and future health and well-being (1). Belonging is a fundamental psychological need (2), and school represents an important arena in which relationships with peers who have a positive influence are possible.

A wide variety of concepts have been used to describe the feelings of connection and belonging that occur in a school. A widely used definition of the term *school connectedness* is "the extent to which students feel personally accepted, respected, included, and supported by others in the school environment" (3). Catalano and colleagues presented another concept of school connectedness called *school bonding* that consists of two components: 1) *attachment,* which is characterized by close emotional bonds with others in the school environment; and 2) *commitment,* which is characterized by cognitive,

emotional, and academic investment in the school (4). Libbey reviewed the application of these concepts and concluded that some researchers study "school engagement", others examine "school attachment," and still others analyze "school bonding" (5). According to Libbey, these various terms "have created an overlapping and confusing definitional spectrum". A total of 21 concepts have been used to describe the topic of school connectedness, and even authors using the same data have used different concepts. Although there is a wide variety of concepts in use, there are some variables that are common to most of these concepts: the feeling of belonging, the degree of care and support received from teachers, the presence of close friends, engagement in personal academic performance and progress, fair and efficient discipline in the school setting, and participation in activities outside of school (5).

A positive feeling toward and relationship with school has been shown to reduce the number of negative life events experienced by children and adolescents (6); such a connection may also act to buffer the potential negative effects of certain risk factors (1). Previous research among the general population has shown that a good relationship with school protects children and adolescents from negative life events, such as violence, smoking, and drugs (6); such feelings also correlate negatively with mental health problems, including anxiety and depression (2;7-9).

Studies have shown that the level of school connectedness predicts later mental health problems with both internalizing and externalizing symptoms (9-11). School connectedness also predicted a lower level of behavioral problems one year later (12) among children in the sixth and seventh grades. Other researchers have examined the relationship between connectedness to school and both internalizing and externalizing symptoms among sixth- and seventh-grade students with the use of the problem section of the Achenbach Youth Self-Report. Those authors found that perceptions of the school climate (a construct similar to school functioning) accounted for 2% and 5% of the variance in internalizing and externalizing symptoms, respectively, 1 year later (9). Shochet and colleagues showed that the covariation between school connectedness and depression was 38% to 55% and the covariation between school connectedness and anxiety symptoms was 9% and 16% (10). Their study also demonstrated that school connectedness predicted depressive symptoms one year later; this indicates that a low level of school connectedness is not only a marker of depressed mood but also a potential risk factor for later depressive symptoms. Ross and colleagues also pointed out that school connectedness may be the most important mediator between low social competence and later depressive symptoms (7). A recent systematic review of school, learning, and mental health concluded there is strong evidence for the association between school functioning and mental health (13). However, the report further concluded that there has been limited research conducted regarding how organizing factors, educational factors, activities in the school setting, and pedagogical support for students with special needs affect mental health.

During the past 10 years, there has been a call for interventions in schools that will reduce the number of children who develop mental health problems (14;15). Numerous studies have shown that increasing school functioning among children who are at high risk of developing mental health problems by raising their academic, cognitive, and relational capacities through early intervention programs reduces the risk of these children later developing mental health problems and behavioral disorders (16-19). Programs have also been developed for general school populations that focus on training children to cope with everyday adversity and negative life events. One such program, entitled *Zippy's Friends,* is used by 30,000 children worldwide (20). A recent randomized controlled trial evaluated the effects of this program and concluded that *Zippy's Friends* had a small but positive effect on children's coping skills as well as on the impact that possible classroom difficulties may have on them (21). However, long-term results are lacking.

In this study, we define the concept of *school functioning* as a child's academic and social/relational functioning at school. General social competence will also be investigated. Thus, the idea of *school functioning* includes most of the variables covered by other constructs; the conclusions drawn from research based on similar concepts (e.g., school connectedness, school bonding) and their effects on mental health should also, at least to some extent, be relevant to our concept of *school functioning.* School functioning was operationalized by the school competence subscale of the Child Behavior Checklist (CBCL) and the academic performance and total adaptive functioning subscales of the Teacher's Report Form (TRF). We also operationalized the idea of *general social competence* with the social competence subscale of the CBCL; see Figure 1 for the conceptual map that was used. In our study, the concept of *mental health problems* was defined by the number and degree of reported emotional and behavioral problems observed from the perspectives of different informants (i.e., teacher and parents) and operationalized with the total problem scales

from the problem sections of the TRF and the CBCL.

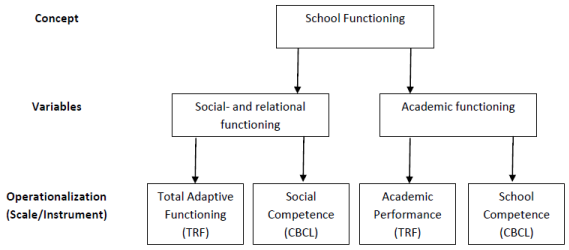

Figure 1. Conceptual map including operationalization of included variables in the present study*
*TRF (Teacher's Report Form) indicates teacher's ratings, CBCL (Child Behavior Checklist) indicates parent's ratings

As discussed previously, prior research has shown that there is a clear association between school functioning and mental health. Conversely, mental health problems have a negative effect on school functioning (12;22). Given the high prevalence of mental health problems among children and adolescents (23), the important role of schools in dealing with these problems (22;24), and the considerable effort that has been invested into the prevention of mental health problems in the general population (20), it is remarkable that we have not found a study that addresses the association between school functioning and mental health among recipients of CAMHS. Previous studies of the reciprocal relationship between school functioning and mental health problems have focused on samples from the general population; this also applies to studies that have addressed how school functioning predicts later mental health problems in children and adolescents. There is growing evidence that systematic interventions involving mental health services should be given in the patient's own environment; this environment includes the school as an important arena, because effective interventions at the clinic and at home showed no generalization effects to peer relationships in day care or school (25). At present, mental health work in schools is mainly initiated by external agents (e.g., public health organizations, social services), which often results in insufficient systematization and continuity.

A study that addresses these topics in CAMHS should, importantly, have clinical implications for the planning and implementation phases of child and adolescent psychiatric treatments. If there exists a strong association between school functioning and mental health among clinical pediatric populations, then assessment and treatment should include school functioning as an important subject to consider in addition to emotional and behavioral issues.

Aims of the study

The overall aim of this study was to explore the strength of the association between school functioning and mental health problems among patients between the ages of 8 and 15.5 years who were receiving CAMHS. We also examined whether good school functioning and general social competence at the time of referral to CAMHS (T1) predicted a better mental health outcome after six months (T2).

The specific research questions were as follows:

1) Does school functioning as reported by parents or teachers at referral correlate significantly with mental health problems? If so, how strong is this correlation?

2) Does the reported level of school functioning at referral (T1), in addition to emotional and behavioral problems, predict emotional and behavioral problems after six months (T2) when controlling for possible confounder variables such as age, sex, and socioeconomic status?

Methods

Participants

In an earlier study (26), consecutive children and adolescents between the ages of 8 and 15.5 years who were referred for the first time to one of three geographical sites of the outpatient clinic of the Department of Child and Adolescent Psychiatry at St. Olav University Hospital in Sør-Trøndelag County, Norway, between July 2003 and December 2005 were asked to participate. The exclusion criteria were insufficient competence in the Norwegian language (i.e., refugees, n = 11) and children and parents who had attended more than two visits before being asked to participate in the study. Of the 501 eligible patients, the parents of 82 patients (16.4%) did not give their informed consent, and the clinical staff did not follow the appropriate research procedures for 74 patients (14.8%). Ultimately, 345 patients were included in the earlier study, which constituted a response rate of 68.9% among the eligible patients. There was no significant difference between the included and excluded patients in terms of the child's living conditions (i.e., with one or both biological parents) or psychosocial functioning as measured by the Axis VI scale of the World Health Organization's tenth revision of the International Classification of Diseases; this is discussed in more detail later in this article. The types of problems described in the physicians' referrals for both participants and non-participants are shown in Table 1, but there were no significant differences seen.

Table 1. Type of problems in the physician referrals for included outpatients and attrition by four subgroups (26)

Group of problems	Physician's reason of referral	Participants (%) n=331[a]	Non-Participants (%) n=148[b]
Emotional problems	Depressive, suicidal, anxious, compulsive, eating disorder	42.0	48.6
Behavioural problems	Hyperactivity/attention and conduct problems	44.4	35.8
School problems	Learning, language- and speech problems and school-phobia	4.8	6.8
Other	Autistic or psychotic symptoms, visual/auditory problems	8.8	8.8

None of the observed differences were significant by Pearson Chi-Square.[a]345 totally included outpatients and [b]156 drop-outs; the difference to N is due to "no problem specified" or physician referral sheet

Present study

The current study is a six-month follow-up study involving the sample that was described previously. However, it was conducted in only the two rural geographic sites of the three sites of the outpatient clinic, so it included only 192 of the 345 previously studied patients. The third urban site was excluded as a result of administrative changes, relocation, and reorganization, which made the follow-up study impractical to conduct. The patients seen at the rural location had significantly lower scores on the CBCL total problems scale (t[324]= –3.39, P = .001) as reported by parents (mean, 45.2; standard deviation, 24.3) as compared with the urban excluded patients (mean, 54.7; standard deviation, 25.9); more details are given about these results later in this article. However, there were no significant differences observed between rural included and urban excluded patients with regard to TRF academic achievement scores and TRF total adaptive scores as reported by teachers; this is addressed in more detail later in this article. In the present follow-up study, of the 192 patients who were eligible at baseline (T1), 158 patients participated. No significant differences were observed with regard to CBCL total problems scores, TRF Academic achievement scores, or TRF total adaptive scores at baseline between participants and non-participants at the 6-month follow up. Parents filled out the CBCL for 120 patients and teachers completed the TRF for 122 patients for the 6-month follow-up. For an overview, see Figure 2.

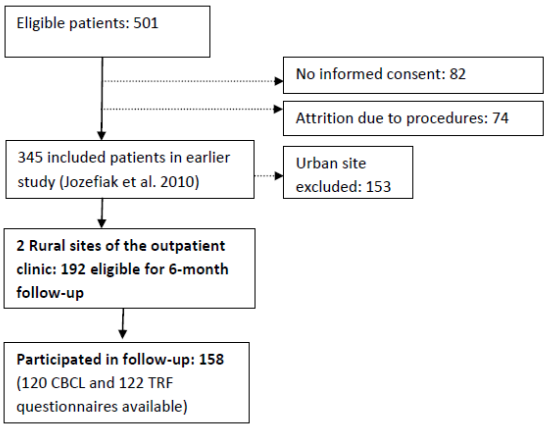

Figure 2. Inclusion of patients in the follow-up study

Procedures

The therapists who met with each patient and his or her parent or parents informed them about the project and gave them written information. The therapists stressed that patient confidentiality would be observed, and they responded to any questions from the patients and their parents. They also determined whether the patient fulfilled any exclusion criteria and scored the patient on the psychosocial functioning scale described later in this article. For more details of this process, see the article by Jozefiak and colleagues (26).

Instruments

CBCL. The CBCL is part of the Achenbach System of Empirically Based Assessment, which is a multi-informant package of standardized scores and descriptive information that addresses children's functioning (27). The CBCL has a competence section and a problem section. Parents are asked to report their children's competence with the use of 20 questions about how often and the extent to which the child is engaged in sports, hobbies, activities, work, duties, and friendships. On the basis of these questions, the following three subscales are calculated: 1) social competence, which is based on number of friends; relationships with peers, siblings, and relatives; and the ability to play alone; 2) school competence, which is based on the child's level of performance in academic subjects, his or her need for special services, and the total number of school problems; and 3) activities, which is based on the child's total number of activities and hobbies. Finally, a total competence score can be calculated on the basis of these three subscales. For this study, we only used the social competence and school competence subscales, because the number of activities and hobbies was not considered relevant for our assessment of social competence. In the problem part of the CBCL, parents are asked to score their

responses to 120 statements about their children's emotional and behavioral problems on a scale that ranges from 0 to 2 (0 = Not True; 1 = Somewhat or Sometimes True; 2 = Very True or Often True). Thus, the range of the total problem score is 0 to 240. The Norwegian version of the CBCL was translated in accordance with international standards and showed satisfactory reliability and validity, and normative data were available (28-30).

TRF. The TRF, which is also part of the Achenbach System of Empirically Based Assessment, is completed by a teacher or another school staff member who has known the child in the school setting for more than two months. Like the CBCL, the TRF also consists of two parts. The first part measures the child's academic performance and adaptive functioning. To evaluate the academic functioning of the patients, their teachers were asked to rate each student's performance in five academic subjects and to compare them with the performance of typical students of the same age using a scale from 1 to 5, where 1 indicated well below average and 5 indicated well above average. The academic subjects that were assessed were Norwegian, mathematics, English, science, and history, and the scores for each subject were then averaged to form an academic performance score. The teachers also used a 7-point Likert scale, with 1 indicating well below average and 7 indicating well above average to rate the child's adaptive functioning and to compare the child with a typical student in terms of how hard he or she worked, how appropriately he or she behaved, how much he or she learned, and how happy he or she appeared to be. These scores were summarized to form a total adaptive score, which was a measure of the child's total adaptive functioning in the school environment. The second part of the TRF, the problem section, is similar to the problem section of the CBCL. Normative data for the Norwegian versions are available (31). The Norwegian TRF has also shown satisfactory internal consistency (32)

Sociodemographic and clinical information. Information about the child's age, sex, number of caregivers, physician's referral, and clinical diagnosis according to the International Classification of Diseases, 10th revision, was obtained through the electronic medical record system. The parents' highest educational level was used as a measure of socioeconomic status and was rated on a standard 7-point scale (33).

Psychosocial functioning. International Classification of Diseases, 10th revision, Axis VI: Global Assessment of Psychosocial Disability (GAPD). The Global Assessment of Psychosocial Disability assesses psychological, social, and occupational functioning with a psychiatric disorder, without regard for the presence or absence of psychiatric symptoms, in children between the ages of 0 and 18 years. It has nine codes that range from 0 to 8, with no steps in between; 0 indicates superior/good functioning or no disability. The lowest level of functioning must have been recorded within the 3 months preceding the assessment.

Statistics

SPSS Statistics 17.0 software was used to analyze the data. Correlations between continuous variables were calculated with Pearson's *r* coefficient. We used a multivariate linear regression analysis to predict emotional and behavioral problems at 6 months after referral. For regression analysis I, using the CBCL total problems score at T2 as the dependent variable, the independent variables were entered blockwise in the following steps: 1) CBCL total problems score at T1; 2) CBCL school competence and social competence scores at T1; and 3) age, sex, and socioeconomic status. For regression analysis II, using the TRF total problems score at T2 as the dependent variable, the independent variables were entered blockwise in the following steps: 1) TRF total problems score at T1; 2) TRF academic competence and adaptive functioning scores; and 3) age, sex, and socioeconomic status. An alpha level of $P < .05$ indicated statistical significance.

Ethics

Before a child was allowed to participate in the study, his or her parents had to provide written informed consent. In addition, the Norwegian Ethical Committee of Medical Research approved this study (reference # 140-02).

Results

School functioning and teacher's report of mental health

There were moderate but significant ($P < .01$) negative correlations between the child's academic functioning (TRF academic scale; $r = –0.42$) and the child´s total emotional and behavioral problems (TRF total problems), and between the total adaptive score (TRF total adaptive score; $r = –0.65$) and the child's total emotional and behavioral problems (TRF total problems), as reported by the teacher at referral (T1) (Table 2). A negative correlation means that the poorer the school functioning, the more emotional and behavioral problems were measured. On the subscale level, "working hard" and "appropriate behavior" showed strong negative correlations with teacher-reported total emotional and behavioral problems (TRF total problems; see Table 2).

Table 2. Pearson Correlations between various scales measuring school function and emotional/behavioral problems on the CBCL and TRF at referral. N=135-181

	TRF tot problems	**CBLC tot problems**	**TRF Academic**	*Working hard*	*Appr. behavior*	*Learning*	*Happy*	**TRF tot adaptive**	**CBCL School comp**	**CBCL Social comp**
TRF tot problems	1	0.26**	-0.42**	-0.63**	-0.68**	-0.33**	-0.47**	-0.65**	-0.43**	-0.18
CBCL tot problems		1	-0.15	-0.23**	-0.17*	-0.11	-0.28**	-0.26*	-0.27**	-0.35**
TRF Academic			1	0.61**	0.40*	0.71	0.28**	0.64**	0.71**	0.32**
Working hard				1	0.69**	0.48**	0.36**	0.84**	0.55**	0.18*
Appr. behavior					1	0.34**	0.46**	0.78**	0.36**	0.10
Learning						1	0.15	0.62**	0.57**	0.18*
Happy							1	0.60**	0.25**	0.31**
TRF tot adaptive								1	0.56**	0.22**
CBCL School comp									1	0.31**
CBCL Social comp										1

Variables in **bold** are major scales, variables in *italic* are subscales. *=p<0.05, **=p<0.01

Table 3. Pearson correlations between involved variables in multiple regression analysis with CBCL total problem score at T2 as dependent variable. N=105-178

	Total Problems (CBCL), T2	**Total Problems (CBCL), T1**	**School Competence (CBCL), T1**	**Social Competence (CBCL), T1**
Total Problems (CBCL), T2	1.00	0.73	-0.41	-0.38
Total Problems (CBCL), T1		1.00	-0.33	-0.44
School Competence (CBCL), T1			1.00	0.39
Social Competence (CBCL), T1				1.00

All correlations were significant (p<0.05). T1: At referral, T2: Six months after referral.
Total problems: The total problem score as reported by the parents through CBCL

Table 4. Multiple regression analysis with CBCL Total Problem scores at T2 as dependent variable. N=85

	Beta	**SE Beta**	**Standardized Beta**
Constant	22.709	17.43	
Total Problems (CBCL), T1	0.700	0.088	0.670**
School Competence (CBCL), T1	-3.809	1.797	-0.183*
Sex	3.881	3.813	0.078
Age, T1	-0.866	0.934	-0.070
Age, T1 SES	-0.403	1.348	-0.024

R^2= 0.581. R^2 Total Problems=0.559 (p<0.05), * p<0.05, ** p<0.01.
T1: At referral, T2: 6 months after referral. SES: Socio-economical status

School functioning and parent's report of mental health

There were low to moderate significant ($P < .01$) negative correlations between the child's school functioning (CBCL school comp; r = –0.27) and the total emotional and behavioral problems (CBCL total problems), and between the child's social functioning (CBCL social competence; r = –0.35), and the total emotional and behavioral problems (CBCL total problems), as reported by the parents at referral (T1) (see Table 2).

Predictors of total emotional and behavioral problems after six months of treatment as reported by parents via the Child Behavior Checklist

Before conducting the linear regression analysis, we calculated the correlations between the possible predictors and the total emotional and behavioral problems six months after referral (Table 3). The strongest predictor of the child's total emotional and behavioral problems six months after referral (T2) was the total level of emotional and behavioral problems at referral (T1) as reported by the parents ($\beta = 0.670$, $P < .01$; Table 4). The child's school competence as reported by the parents at T1 (CBCL school competence T1) also significantly predicted the total emotional and behavioral problems at T2 (CBCL total problems at T2; $\beta = –0.183$, $P < .05$; see Table 4). Reported social competence at T1 (CBCL social competence T1) did not significantly predict the child's total emotional and behavioral problems at T2. In addition, the possible confounding variables of sex, age, and socioeconomic status were not significant predictors in this model. The total emotional and behavioral problems at T1 (CBCL total problems at T1) explained 53.7% ($R^2 = 0.537$) of the variance in the total emotional and behavioral problems 6 months after referral for CAMHS (CBCL total problems at T2). The final model explained 58.1% ($R^2 = 0.581$) of the variance

in the total emotional and behavioral problems at T2 (see Table 4).

Predictors of total emotional and behavioral problems after 6 months of treatment as reported by teachers via the Teacher's Report Form

The only significant predictor of the total emotional and behavioral problems reported by the teachers after 6 months was the children's total emotional and behavioral problems reported by the teachers at referral ($\beta = 0.729$, $p < 0.001$).

Discussion

Teachers reported a significant moderate negative association between the child's total adaptive functioning in the school environment and the child's total emotional and behavioral problems at referral. We also found a significant moderate negative association between the child's academic skills as reported by the teacher and the child's total emotional and behavioral problems. Parents reported a significant low to moderate negative association between the child's school competence and the child's total emotional and behavioral problems at referral. Social competence as reported by the parents also showed a significant moderate negative association with the child's total emotional and behavioral problems. The child's school competence as reported by the parents at referral significantly predicted the child's total emotional and behavioral problems at six months after referral.

Parents' and teachers' reports: different perspectives

In this study, we gathered information about children's competence and their emotional and behavioral problems from both their teachers' (TRF) and their parents' (CBCL) perspectives. The TRF and CBCL share similar problem sections, but the correlation between the teachers' and parents' problem ratings was low (0.26). This is a well-recognized phenomenon that occurs as part of the multi-informant assessment of mental health problems (34), and it is cited as one of the most robust findings in psychopathology (35). In addition, the ratings of the two informant sources at T1 (baseline) did not predict each other's outcomes at T2. However, the aim of this study was not to compare the two informant sources but rather to exploit the advantages of using such a multi-informant perspective to explore the reciprocal relationship between school functioning and mental health problems.

Association between school functioning and mental health in child and adolescent psychiatric patients

Our findings indicate that there is a relationship between school functioning and mental health in child and adolescent psychiatric outpatients at the time of referral. This is consistent with previous research conducted in the general population (2;7-9). The relationship seemed to be stronger between the mental health and school functioning reported by the teacher than between the mental health and school functioning reported by the parents at baseline. On the subscale level, our results indicate that children's adaptive functioning in the school setting as reported by the teacher and parent-reported social competence are more closely related to mental health symptoms than academic functioning has been found to be. Our results also indicate that the teachers' evaluations of the children's social adaptation skills in the school setting are more strongly related to mental health symptoms as compared with parents' evaluations of their children's social competence outside of school.

The strongest association was found between the child's mental health and his or her adaptive skills in the school environment as reported by the teacher. Academic functioning as reported by either the parent or the teacher showed a low to moderate association with mental health. These results may be explained by the fact that adaptive skills in a social setting (e.g., the school setting) are closely related to the environmental context. In addition, such adaptive functioning at school may be a measure of the severity of the child's symptoms and behaviors as they interfere with that environmental context. The teacher observes the child's adaptive skills in the school setting to a much greater extent than parents do and therefore provides a more realistic picture of the child's actual adaptive skills at school. Another important point is that the social competence reported by the parents on the CBCL had somewhat different content than the total adaptive score of the TRF, although they covered similar areas of social functioning. For example, the parents reported the child's number of friends, his or her relationships with peers, and his or her ability to play on his or her own on the social competence subscale, whereas the teachers reported how hardworking, how appropriately behaved, how willing to learn, and how happy the child appeared to be on the total adaptive score subscale. Thus, the teacher's report may reflect different aspects of social functioning (i.e., those that are usually associated with symptoms of common psychiatric diseases, such as conduct disorder, depression, and attention-deficit/hyperactivity disorder) than those reflected in the parent's report. The parents' and teachers' ratings of academic functioning are also subjective, although they are based on more objective information (e.g., the child's marks in various school subjects) as compared with social competence.

Therefore, the strong correlation ($r = 0.71$) between the CBCL school competence subscale and the TRF academic competence scale and the quite similar association of these two subscales with mental health were as expected.

School functioning as a predictor of mental health in child and adolescent psychiatric patients at the six-month follow up

The findings of our study indicate that the child's school competence—measured as the level of performance in academic subjects, the need for special services, and the total levels of school problems as reported by the parents through CBCL—was a significant predictor of the total number of mental health symptoms six months after referral. Previous studies have shown that the level of school connectedness predicted later mental health problems in the general population (9-12). As outlined in the Introduction section of this article, the *school connectedness* construct is a measure of the child's social competence at school rather than of his or her academic competence. Because our version of school functioning, which is partly measured by the school competence subscale of the CBCL, reflects both the child's academic competence and his or her social competence via his or her need for special services and his or her total number of school problems, our results may be comparable to those of former studies, at least to some degree.

We were surprised to find that teacher-reported adaptive functioning, which correlated most strongly with the child's total emotional and behavioral problems at referral, did not significantly predict the teacher-reported total emotional and behavioral problems six months after referral. However, this may indicate that, over a period of six months, the most important predictive factors for mental health symptoms are not the teacher's perception of the child's adaptive functioning (i.e., in a class of up to 30 pupils); rather, how parents perceive their own child's level of problems at school, the child's need for special services, and the child's academic functioning at the time of referral to CAMHS may be more predictive. As mentioned previously, the correlation between parents' and teachers' problem ratings was low, which indicates that the two types of informants have different perspectives with regard to children's emotional and behavioral problems. Deng and colleagues demonstrated that parent–teacher agreement was greater for attentional and externalizing problems than for internalizing problems and that it decreased with increased behavioral problems, so correlations can be expected to be low in a clinical population (36). Our study may indicate that, in a clinical population of child and adolescent patients with psychiatric concerns, the parents' ratings of these problems are more correct than the teachers' ratings. Parents of children with mental health problems observe their children in several contexts and likely know them better than their teachers do. Thus, parents may recognize changes in school functioning as well as in the total levels of emotional and behavioral problems in a more accurate way than teachers do. For example, parents are closely involved in the outpatient treatment of their children and may therefore be more aware of their children's problems and the changes that occur in these problems throughout the treatment process. Children with levels of emotional and behavioral problems that are so high that they require treatment, such as those in our patient sample, may also be absent from school more often than children in the healthy population. Therefore, it is reasonable to consider that the parents of children who are receiving CAMHS observe their children more intensively than the children's teachers, especially as compared with the parents of children in the healthy population. Our study thus indicates that mental health personnel in a clinical setting should also pay attention to parents' reports of the school functioning and total emotional and behavioral problems of their children. Therapy should be based on a multimodal approach that includes not only the therapist but also teachers and parents.

The wide spectrum of definitions that are used to describe a child's connectedness to school makes it difficult to compare studies and to identify what is actually being measured (37). Further research is required to unravel the developmental precursors of school connectedness so that this construct may be measured in a proper way, although some factors (e.g., social skills, attachment to parents, school environment) have already been shown to be significant predictors of school connectedness (14). The clarification of the concepts and a common definitional framework are vital if research into this topic is to benefit children with mental health problems.

It is important to widen our perspective on children's mental health by including the school as an important area for treatment. Interventions that are designed to prevent and treat mental health symptomatology in patients receiving CAMHS should target social skills and school functioning in an integrated way. At referral, CAMHS should specifically take advantage of parents' knowledge of their children's school functioning. A multimodal approach in which the therapist includes teachers and parents in both the planning and intervention phases of the CAMHS would provide a tailored and individualized treatment plan for the child that addresses the relevant mental health problem. In this way, treatment could be organized to include a school-based

intervention by recognizing school functioning as an important parameter for the successful treatment of patients receiving CAMHS.

Limitations

As a result of the exclusion of the urban site of the outpatient department, the patients included in this study were only those that live in rural districts in one county in central Norway, thereby limiting the representativity of the sample. As expected, the included patients showed lower levels of emotional and behavioral problems at baseline than the excluded urban patients did. However, we did not observe significant differences with regard to school functioning between rural and urban children. For the present study, 192 patients were eligible. Of the 158 patients who participated at follow up, 120 of their parents completed the CBCL, and the teachers filled out the TRF for 122 of them. Therefore, there was some attrition, which was mainly attributable to parents and teachers not filling out questionnaires. Another limitation of the study was that we did not include self-reports of mental health, such as those collected with the Achenbach Youth Self-Report. The Achenbach Youth Self-Report was not included in this study because it would have considerably reduced the size of our clinical sample, thereby diminishing the statistical power of the analysis and corrupting the results. The use of additional behavior rating scales and observational data could have offered more to our multisource approach. We also mainly focused on associations between teacher-reported variables and then looked separately at relationships between parent-reported variables. Any associations may therefore be partly a result of the rater's overall bias toward rating the child positively or negatively. Lastly, the information about children's emotional and behavioral problems was obtained with questionnaires rather than with semi-structured clinical interviews conducted by clinical professionals, the latter of which is acknowledged as the gold standard method. However, the resources available for this study precluded this option.

Conclusion

Research into the association between mental health and school functioning in clinical populations of outpatients who are receiving CAMHS is very limited. The results of our study indicate that there is an association between mental health and school functioning in these patients. The strongest association at baseline was between the children's adaptive skills in the school environment and the total levels of emotional and behavioral problems as reported by their teachers. However, for our 6-month follow-up study, only parent-reported school competence and the total level of emotional and behavioral problems at baseline predicted the total level of emotional and behavioral problems at T2.

Implications

Mental health work in schools is mainly initiated by external agents (e.g., public health services, child care services, ideal organizations), which results in insufficient systematization and continuity. Therapists, teachers, and parents should cooperate closely when planning and conducting child and adolescent psychiatric treatments, and the school should be included as an important arena for intervention.

References

1. Anderman LH, Freeman TM. Students' sense of belonging in school. Advances in Motivation and Achievement 2004;13:27.
2. Anderman EM. School effects on psychological outcomes during adolescence. J Educ Psychology 2002;94:795-809.
3. Goodenow C. The psychological sense of school membership among adolescents: scale development and educational correlates. Psychology in the Schools 1993;30:79-90.
4. Catalano R, Haggerty K, Oesterle S, Fleming C, Hawkins J. The Importance of bonding to school for healthy development: findings from the Social Development Research Group. J Sch Health 2004;74(7):252-61.
5. Libbey HP. Measuring student relationships to school: attachment, bonding, connectedness, and engagement. J Sch Health 2004;74:274-83.
6. Resnick MD, Bearman PS, Blum RW, Bauman KE, Harris KM, Jones J, et al. Protecting adolescents from harm: findings from the National Longitudinal Study on Adolescent Health, JAMA 1997;278(10):823-32.
7. Ross AG, Shochet IM, Bellair R. The role of social skills and school connectedness in preadolescent depressive symptoms. J Clin Child Adolesc Psychol 2010;39(2):269-75.
8. Bond L, Butler H, Thomas L, Carlin J, Glover S, Bowes G, et al. Social and school connectedness in early secondary school as predictors of late teenage substance use, mental health, and academic outcomes. J Adolesc Health 2007;40(4):357.e9-18.
9. Kuperminc GP, Leadbetter BJ, Blatt SJ. School social climate and individual differences to psychopathology among middle school students. J Sch Psychology 2001;39:141-59.
10. Shochet IM, Dadds MR, Ham D, Montague R. School connectedness is an underemphasized parameter in adolescent mental health: results of a community prediction study. J Clin Child Adolesc Psychol 2006;35:170-9.
11. Jacobson KC, Rowe DC. Genetic and environmental influences on the relationship between family connectedness, school connectedness and adolescent depressed mood: Sex differences. Dev Psychol 1999;35(4):926-39.
12. Loukas A, Ripperger-Suhler KG, Horton KD. Examining temporal associations between school connectedness and early adolescent adjustment. J Youth Adolesc 2009;38(6):804–12.
13. Gustafsson JE, Allodi MW, Åkerman BA, Eriksson C, Eriksson L, Fischbein S, et al. School, learning and mental health: a systematic review. Stockholm: The Royal Swedish Academy of Sciences, The Health Committee 2010;[Retrieved 15th May 2013] Available from

http://www.kva.se/documents/vetenskap_samhallet/halsa/utskottet/kunskapsoversikt2_halsa_eng_2010.pdf

14. Shochet IM, Homel R, Montgomery DT, Cockshaw WL. How does school connectedness and attachment to parents interrelate in predicting adolescent depressive symptoms? J Clin Child Adolesc Psychol, 2008;37:676-81.

15. Faulkner GEJ, Adalf EM, Irving MA, Allison KR, Dwyer J. School disconnectedness: identifying adolescents at risk in Ontario, Canada. J Sch Health 2009;79(7):312-318.

16. Hawkins JD, Catalano RF, Kosterman R, Abbott R, Hill KG. Preventing adolescent health-risk behaviors by strengthening protection during childhood. Arch Pediatr Adolesc Med 1999;153:226-34.

17. Campbell FA, Ramey CT, Pungello E, Sparling J, Miller-Johnson S. Early childhood education: young adult outcomes from the Abecedarian Project. Applied Developmental Science 2002;6(1):42-57.

18. Catalano RF, Mazza JJ, Harachi TW, Abbott RD, Haggerty KP, Fleming CB. Raising healthy children through enhancing social development in elementary school: results after 1.5 years. J Sch Psychology 2003;41(2):143-64.

19. Hamre BK, Pianta RC. Early teacher-child relationships and the trajectory of children's school outcomes through eighth grade. Child Dev 2001;72(2):625-38.

20. Mishara B, Ystgaard M. Effectiveness of mental health promotion to improve coping skills in young children: Zippy's Friends. Early Childhood Res Quart 2006;21:110-23.

21. Holen S, Waaktaar T, Lervåg A, Ystgaard M. The effectiveness of a universal school-based programme on coping and mental health: a randomised, controlled study of Zippy's Friends. Educational Psychol 2002;32:657-77.

22. Hoagwood K, Johnson J. School psychology: a public health framework 1. From evidence-based pracices to evidence-based policies. J Sch Psychol 2003;41:3-21.

23. Mathiesen KS, Karevold E, Knudsen AK. Psykiske lidelser blant barn og unge i Norge. Folkehelseinstituttet; 2010

24. Rones M, Hoagwood K. School-based mental health services: a research review. Clin Child Family Psychol Rev 2000;3:223-41.

25. Drugli MB, Larsson B, Clifford G. Changes in social competence in young children treated because of conduct problems as viewed by multiple informants. Eur Child Adolesc Psychiatry, 2007;16:370-8.

26. Jozefiak T, Larsson B, Wichstrøm L, Wallander J, Mattejat F. Quality of life as reported by children and parents: a comparison between students and child psychiatric outpatients. Health Qual Life Outcomes 2010;8:136-44.

27. Achenbach TM, Rescorla L. An integrated system of multi-informant assessment – school-age forms and profiles. USA: Library of Congress; 2001.

28. Nøvik TS. Validity and use of the child behavior checklist in Norwegian children and adolescents: an epidemiological and clinical study. Centre for Child and Adolescent Psychiatry, Department Group of Psychiatry, University of Oslo, Oslo;1999.

29. Nøvik TS. Validity of the child behaviour checklist in a Norwegian sample. Eur Child Adolesc Psychiatry 1999;8:247-54.

30. Jozefiak T, Larsson B, Wichstrøm L, Rimehaug T. Competence and emotional/behavioural problems in 7-16-year-old Norwegian school children as reported by parents. Nordic J Psychiatry 2012;66:311-9.

31. Larsson B, Drugli MB. School competence and emotional/behavioral problems among Norwegian school children as rated by teachers on the Teacher Report Form. Scand J Psychol 2011;52:553-9.

32. Drugli MB, Klöckner C, Larsson B. Do demographic factors, school functioning and quality of student-teacher relationship as rated by teachers predict internalizing and externalizing problems among Norwegian schoolchildren. Evaluation & Research in Education 2011;24:243-54.

33. Hollingshead AB. Two factor index of social position. New Haven: Yale University; 1958

34. Achenbach TM, McConaughy SH, Howell CT. Child/adolescent behavioral and emotional problems: implications of cross-informant correlations for situational specificity. Psychol Bull 1987;101:213-32.

35. De Los Reyes A, Kazdin AE. Informant discrepancies in the assessment of childhood psychopathology: a critical review, theoretical framework, and recommendations for further study. Psychol Bull 2005;131(4):483-509.

36. Deng S, Liu X, Roosa M. Agreement Between Parent and Teacher Reports on Behavioral Problems Among Chinese Children. J Dev Behav Pediatr 2004;25:407-14.

37. Barber BK, Schluterman JM. Connectedness in the lives of children and adolescents: A call for greater conceptual clarity. J Adolesc Health 2008;43:209.

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